

Preparing to Run on Electra Broadwell Nodes

To help you prepare for running jobs on Electra's Broadwell compute nodes, this short review includes information on the general configuration, compiling your code, running PBS jobs, and checking allocation usage.

Overview of Electra Broadwell Nodes

Electra is housed in a module outside of the primary NAS facility. The system has 16 Broadwell racks, each containing 72 nodes. Each of the 72 nodes contains two 14-core E5-2680v4 (2.4 GHz) processor chips and 128 GB of memory.

Electra's InfiniBand fabric (ib1) is used mainly for I/O and is connected to the Pleiades Lustre filesystems. In addition, Electra and Pleiades share the same home filesystems, Pleiades front-end systems (PFEs), and PBS server. You can access Electra only through PBS jobs submitted from the PFEs.

Usage of Electra Broadwell nodes is charged to your project's allocation on Pleiades at the same Standard Billing Unit (SBU) rate as the Pleiades Broadwell nodes.

Compiling Your Code For Broadwell Nodes

See the **Compiling Your Code For Broadwell Nodes** section in [Preparing to Run on Pleiades Broadwell Nodes](#).

Running PBS Jobs on Broadwell Nodes

To request Broadwell nodes, use `model=bro_ele` in your PBS script.

Note: If your job requests only `model=bro_ele` nodes, then by default PBS will run your job on either Pleiades or Electra Broadwell nodes, whichever becomes available first. If you specifically want your job to only run on Electra, then add `-l site=static_broadwell` to your job request. For example:

```
#PBS -l select=10:ncpus=28:mpiprocs=28:model=bro_ele
#PBS -l site=static_broadwell
```

Similarly, a request to use Pleiades Broadwell nodes using `model=bro` will by default run on either Pleiades or Electra Broadwell nodes. For more information, see [Preparing to Run on Pleiades Broadwell Nodes](#).

Sample PBS Script For Broadwell Nodes

```
#PBS -l select=10:ncpus=28:mpiprocs=28:model=bro_ele
#PBS -l walltime=8:00:00
#PBS -q normal
module load comp-intel/2016.2.181 mpi-hpe/mpt
cd $PBS_O_WORKDIR
mpiexec -np 280 ./a.out
```

For more information about Broadwell nodes, see:

- Electra Configuration Details
- Broadwell Processors

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Systems Reference -> Electra -> Preparing to Run on Electra Broadwell Nodes

<https://www.nas.nasa.gov/hecc/support/kb/entry/536/>